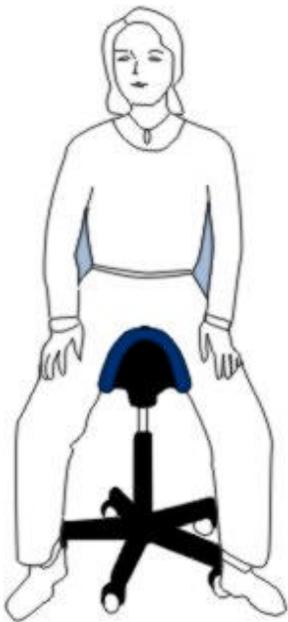


The Bambach Saddle Seat And Cerebral Palsy



The Bambach Saddle Seat is designed to take best advantage of human body mechanics by positioning the body to allow normal spinal posture while working and therefore allowing it to function best.

This seat is designed to keep the pelvis in its natural, neutral position when sitting (just as it is when standing). In this position the spine and shoulder girdle, trunk, head and neck can function in their most natural, stable position, with minimal stress.

Sitting on the Bambach Saddle Seat encourages upright position, with hips abducted and flexed to 45°. Knees and ankles are also in the mid position, where abnormal tone and movement are inhibited.

Benefits of sitting in the Saddle Seat position.

- A clear midline assists maintenance of balance and symmetry.
- Limbs in position to minimise abnormal tone.
- Partial weight bearing can be encouraged through to standing from a half-sitting position
- Facilitation of movement from sitting to standing position.
- Greater control of sensory inputs which trigger unwanted motor responses.
- Focus on pelvic control towards maintaining an upright, stable pelvis.
- Facilitation of independence in sitting and other motor activities.
- Trunk and head control are easier in the natural position so that functional activities, such as swallowing, speech and respiration, are improved.
- Self care activities, such as meals, dressing, writing, computer work, hobbies and playing games, are more easily performed.
- The person sitting upright is in an active posture rather than in a passive 'collapsed' position.



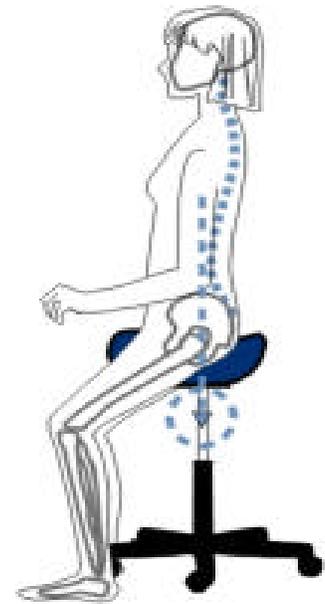
The Saddle Seat and the centre of gravity



In a conventional seat the centre of gravity is behind the upper trunk.



The Saddle Seat has a contour which cradles and stabilises the pelvis. It is adjustable for height and tilt. The centre of gravity is over the supporting base, or ischial tuberosities (seat bones), the same as in standing.



The Saddle Seat tilts the pelvis upright and stabilises it, assisting in maintaining normal spinal curves.

Stewart & McQuilton, in their paper 'Straddle Seating For The Cerebral Palsied Child' (Physiotherapy 1987) state in their conclusion:

'It appears that the centre of gravity of the upper trunk, relative to the sitting base, plays a major part in the mechanics of sitting comfortably in the normal person. In those with Cerebral Palsy it has an even greater effect, particularly in relation to the predominantly reflex pattern of

Prior to this, in the same paper, they quote M. Brunswick (Physiotherapy U.K., 1984):

"...when sitting the centre of gravity for the upper part of the body lies just in front of the 12th Thoracic Vertebrae'

and say:

'For comfort, working activities and

An example of how seating affects posture in cerebral palsy

A typical reaction to conventional seating



A solution, but not ideal for activities or socialising.

The roller, or straddle seat, is a better position for activity. The Saddle Seat offers even more pelvic support, adjustability and mobility.



With the pelvis unsupported, the result is poor functional position.

Some comparisons in posture: Saddle Seat vs conventional chair

Dr A.C. Mandal, 'The Seated Man', Applied Ergonomics (March 1981):



'Modern work chairs are constructed in such a way that nobody can use them without excessive loading of the back...The construction of chairs has, so far, mainly been based on tradition and fashion. In future it ought to be based on knowledge of the anatomy of the seated man.'

'No child can sit in the upright posture for more than a few minutes, as they can only bend the hip joints to 60° ...'



(The remaining 30° of the movement occurs at the lumbar spine, flattening it. This is a result of the pelvis tilting back to allow hip flexion.)

An example of how the Saddle Seat position works

Right: A woman with cerebral palsy unable to sit in a wheelchair without being restrained by a waist belt and her arms pushed through the sides of her wheelchair. She is totally dependent.

In the horse-riding position, she was safe and independent and able to sit unsupported.

In contrast, sitting in a wheelchair or chair would make her quickly go into spasm and lose control of her balance.



(Illustrations based on photographs)

Left: On a horse, sitting unsupported and rising, eventually at a trot.



Right: One year later – able to use the reins by means of a Velcro attachment at the shoulder. Trunk rotation was used for right and left, and trunk extension for stop.



'Without doubt the best sitting posture is obtained on horseback. The hip joints are in the resting position with a bend of 45°. Thus the hip joints and lumbar spine are not loaded in an extreme position and a perfect balanced position is obtained in which the body adjusts its centre of gravity.'

— A.C. Mandal, 'The Seated Man', Applied Ergonomics (March 1981) 19–26.

'Like no other ergonomic chairs, it places the person in a more favourable posture tilting the pelvis forward with the knees below the hips, maintaining the lumbar curve. Unlike the other chairs, it is exceedingly comfortable, with the feet on the ground, absorbing the weight of the thighs; it is highly manoeuvrable and thus very workplace friendly.'

— David France, B.Ed B.Sc, M, Chiro.



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